



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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TECHNOLOGY CENTER 2800

In re the Application of

Osamu UENO et al.

Group Art Unit: 2827

Application No.: 09/805,250

Examiner: T. Tuan Dinh

Filed: March 14, 2001

Docket No.: 108910

For: CIRCUIT BOARD DEVICE AND DESIGN SUPPORT DEVICE

AMENDMENT

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Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

DEC 03 2002
Technology Center 2100

Sir:

In reply to the August 29, 2002 Office Action, please amend the above-identified application as follows:

IN THE DRAWINGS:

Please amend Figures 6A-6B and 12-13 as set forth in the attached Request for Approval of Drawing Corrections.

IN THE CLAIMS:

Please cancel claim 4 without prejudice to or disclaimer of the subject matter contained therein.

Please replace claim 1 as follows:

1. (Amended) A circuit board device having a power supply region divided into two or more power supply regions by a slit and a ground region adjacent to the power supply region, wherein, when at least one region of said two or more power supply regions and the ground region that are adjacent has a shape that may be considered a track, a terminal element having an impedance that is substantially equal to a characteristic impedance

between said at least one region and said ground region is connected between said power supply region and said ground region at a terminal portion vicinity of said at least one region.

Please add new claims 15-20 as follows:

--15. A circuit board device having a power supply region and a ground region that are adjacent and are formed in the same layer, wherein, when at least one region of the power supply region and the ground region that are adjacent has a shape that may be considered a track, a terminal element having an impedance that is substantially equal to a characteristic impedance between said regions is connected between the power supply region and the ground region at a terminal portion vicinity of said at least one region.--

--16. The circuit board device according to claim 15, wherein the terminal element includes a capacitor.--

--17. The circuit board device according to claim 15, wherein the terminal element includes a resistor and a capacitor which are series-connected.--

--18. The circuit board device according to claim 15, wherein the region that may be considered a track is a shape having a length that is larger than a width.--

--19. The circuit board device according to claim 15, wherein an impedance Z_r of the terminal element is set such that a characteristic impedance Z_e and the impedance Z_r of the terminal element satisfy a relationship $0.1 \leq Z_r/Z_e \leq 10$.--

--20. The circuit board device according to claim 17, wherein a relationship between a characteristic impedance Z_e and a resistance R of the resistor satisfies $(Z_e/5) \leq R \leq (5 \cdot Z_e)$, and a capacity C of the capacitor satisfies $C \geq 1/(10\pi \cdot f_{\min} \cdot Z_e)$, where f_{\min} is a lower limit of a radiation noise frequency of a reduction target.--

REMARKS

Claims 1-3 and 5-20 are pending in this application. Claims 2-3 and 10-14 have been withdrawn from consideration. By this Amendment, claim 1 is amended, claims 15-20 are added. Furthermore, claim 4 is canceled. No new matter is added. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Applicants gratefully acknowledge that the Office Action indicates that claim 9 contains allowable subject matter.

OBJECTIONS

The Office Action objects to Figures 6A-6B and 12-13 because of minor informalities. Applicants amend Figures 6A-6B and 12-13 in the attached Request for Approval of Drawings Corrections to correct the minor informalities. Accordingly, Applicants respectfully request that the objection be withdrawn.

CLAIM REJECTIONS

The Office Action rejects claims 1 and 4-7 under 35 U.S.C. §102(b) as being anticipated by Lockwood et al. (U.S. Patent No. 5,898,576); claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over Lockwood. Applicants respectfully traverse the rejections as applied to claims 1, 4-7 and 15-20.

In particular, Applicants respectfully assert that Lockwood does not disclose or suggest a circuit board device having at least a power supply region divided into two or more power supply regions by a slit and a ground region adjacent to the power supply region, as recited in independent claim 1.

Moreover, Applicants respectfully assert that Lockwood does not disclose or suggest a circuit board device having at least a power supply region and a ground region that are adjacent and are formed in the same layer, as recited in independent claim 15.

Specifically, Lockwood discloses a power-ground plane construction 30, including a power plane 32, a ground plane 34 and a dielectric layer 36 sandwiched between the power plane 32 and the ground plane 34. See col. 3, line 66 - col. 4, line 3; see also Figure 3. The power plane 32 and the ground plane 34 are conceptually divided into a plurality of sections or strips 38, 40. See col. 4, lines 54-63; see also Figures 4-5. Each section or strip is terminated by a discrete and dedicated termination element 48 having resistive and capacitive properties. The resistive value (R) of each termination element 48 is approximately equal to the impedance value (Z_0) of each of the section or strips. See col. 5, lines 14-17 and lines 21-23.

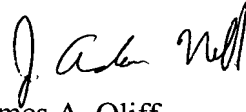
In stark contrast to Applicants' claimed invention, Lockwood does not disclose or suggest a circuit board device having a power supply region divided into two or more power supply regions by a slit and a ground region adjacent to the power supply region. Moreover, Lockwood fails to disclose or suggest a circuit board device having at least a power supply region and a ground region that are adjacent and are formed in the same layer.

Accordingly, because Lockwood does not disclose each and every feature as the claimed invention, Applicants assert that independent claims 1 and 15 define patentable subject matter. Claims 5-9 and 16-20 depend from independent claims 1 and 15, respectfully, and therefore also define patentable subject matter. Accordingly, Applicants respectfully request that the rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 5-9 and 15-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Appendix
Request for Approval of Drawing Corrections

Date: November 29, 2002

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